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Part IV: Rollers with Non-metallic Rope Bearing Surfaces
[MED 8: Mining Techniques and Equipment]

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IS : 9203 (Part IV)- 1979

(Reaffirmed 1999)

Indian Standard

SPECIFICATION FOR FRICTION ROLLERS FOR MINE HAULAGE TRACKS

PART IV ROLLERS WITH NON-METALLIC ROPE BEARING SURFACES

1. Scope — Covers the requirements for rollers having non-metallic rope bearing surface for use on mine haulage tracks for guidance of haulage rope.

2. Dimensions

All dimensions in millimetres.

Nominal Size	Diameter of Parallel Portion of Barrel ± 1·6	Length of Roller Outside Flanges ± 1·6	Spindle Diameter ± 0·25	Spindle Length	Flange Diameter ± 1·6
NM1	100	230	19	330	140
NM2	100	300	19	400	140
NM3	115	230	19	330	150
NM4	115	300	19	400	150
NM5	125	150	19	250	165
NM6	125	230	19	330	165
NM7	125	300	19	400	165
NM8	150	200	25	300	190
NM9	150	300	25	400	190
NM10	150	460	25	560	190
NM11	200	300	25	430	250
NM12	300	300	32	460	250
NM13	300	460	32	620	350

Note — Where bearing covers are fitted, they shall in no case project more than 6 mm from flange face.

3. Eccentricity — When tested in accordance with method laid down in IS : 9203 (Part I)-1979 'Specification for friction rollers for mine haulage tracks: Part I Technical supply conditions', the total throw shall not exceed 2·4 mm.

4. General Requirements — Shall conform in all respects to IS : 9203 (Part I)-1979.

5. Designation — A friction roller having non-metallic rope bearing surface of nominal size NM2 conforming to this standard shall be designated as:

Friction roller NM2 IS : 9203 (Part IV)

6. Design — The design of rollers shall take following factors into account:

a) The roller liner shall be shock absorbent in order to reduce the effect of steel upon steel when rope comes into contact with a roller.

b) The liner shall have high resistance to wear.

c) The roller shall be as light as possible in order to reduce the inertia resisting its rotation, and

d) The bearing shall, as near as possible, be frictionless.

Mining Sectional Committee, EDC 50; Mine Tracks Subcommittee, EDC 50 : 12 [Ref : Doc : EDC 50 (2962)]

Adopted 7 June 1979

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EXPLANATORY NOTE

Haulage rollers play an important part on the life of the haulage rope. A fast moving haulage rope bearing heavily on a hard object such as trackrail, seized roller or bouncing and rubbing on a roller, causes local high temperatures of the order of 700°C at points of contact. A rapid cooling of wires heated in this manner is sufficient to produce a layer of martensite up to 0·08 mm thickness. Normal bending of rope on which martensite is present will cause fine hair cracks on the worn surfaces of the wire which may extend into the wire. Such cracks are not easily detected and, if undetected, can lead to failure of the rope without warning.

With a view to minimize the conditions resulting in the formation of martensite, the haulage installation shall be carefully designed and maintained. However, in cases where the intermittent contact with rollers is unavoidable, the use of rollers with non-metallic rope bearing surface shall be considered.

The dimensions specified in this standard are such as to achieve a degree of interchangeability between these rollers and conventional rollers covered by Part II of this standard [*see* IS : 9203 (Part II)-1979 'Specification for friction rollers for mine haulage tracks: Part II Parallel rollers']. This standard on friction rollers is being issued in different parts as follows:

Part I — Technical supply conditions
Part II — Parallel rollers
Part III — Tapered and vertical rollers and horizontal and vertical pulleys
Part IV — Rollers with non-metallic rope bearing surfaces

While preparing this standard considerable assistance has been derived from BS 3876 : Part II: 1965 'Specification for rope rollers and mountings for colliery track haulage : Part II Rollers with non-metallic rope bearing surface' issued by the British Standards Institution.

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